WEED SEEDLING EMERGENCE AND MICROCLIMATE IN A TROPICAL ENVIRONMENT.

Friday Ekeleme, Frank Forcella, David Archer, and David Chikoye, Assistant Professor, Research Agronomist, Agricultural Scientist, and Research Scientist, Michael Okpara Agricultural University, Umudike, Nigeria; USDA-ARS, Morris, MN 56267; and International Institute of Tropical Agriculture, Ibadan, Nigeria.

Tropic ageratum (*Ageratum conyzoides*) is an important annual weed in tropical cropping systems. Better and more timely strategies for its control might be developed through a more thorough understanding of its emergence behavior. Seedling emergence of tropic ageratum was monitored periodically and standard weather data were collected daily for each of four years at IITA, Ibadan, and for one year at Umudike. The weather data were used in the SHAW (Soil Heat and Water) model to estimate soil temperature and soil water potential at the 2 cm depth. The estimated variables were converted to soil hydrothermal time (HTT). Cumulative relative emergence (CRE) values for all four years from Ibadan were compared iteratively against HTT using a series of base temperatures and base water potentials. The four sets of data "collapsed" best upon one another when HTT was calculated using a base temperature of 28 C and a base water potential of – 0.02 MPa. The aggregate data fit a Weibull function of the form: CRE = 100*(1-e^(0.0054*HTT^1.4268)). This model was used to simulate emergence of tropic ageratum at Umudike, and the simulated results compared favorably with observations: r^2 = 0.98, and the coefficient describing the dependence of observed emergence on simulated emergence was near unity (0.97). Both statistics indicate that the model simulated emergence of tropic ageratum dependably.

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